

## REMARKS

### Amendments To The Specification

The Applicant has carefully reviewed the rejections raised in the Final Office Action dated March 7, 2007. As a result, the claims have been amended in order to overcome the 35 U.S.C. 112 objections raised in Paragraph 3 of the Action.

Specifically, claim 47 has been amended to depend from claim 15 which has a suitable antecedent basis for the term "substrate". Claims 48 and 49 have also been amended to depend on claim 47 which provide an antecedent basis for each of the expressions "optoelectronic devices" and "electronic devices".

The Applicant thanks the Examiner for kindly pointing out these defects.

In addition to these amendments, claims 1 and 10 have been amended to more particularly and distinctly claim the invention. Specifically, these claims have been amended to use the "consisting essentially of" language to particularly recite that the first layer is only fullerenes.

Claims 9 and 14 have been recast into an independent claim format to specifically claim that the first layer "consists essentially of a mixture of one of" the recited mixtures.

Further, claims 19, 26, 41 and 43 have been amended to replace the term "defining" with "forming" whose proper antecedent basis is found in their parent claim 15.

On page 3 of the Office Action, the Examiner has rejected claims 15, 17-20, 22-26, 30-46 and 48-49 as containing subject matter not described in the specification. Specifically, the Examiner has deemed that the specification does not support a second interfacial layer in the same structure with a first interfacial layer.

Responsively, claim 15 has been amended to delete the subject matter which the Examiner has deemed as not supported by the specification. It is submitted that the texts being deleted from claim 15 was the subject matter of claims 21 and 27, which were cancelled in the previous claim amendments.

Accordingly, new claims 50 and 51 have been added to re-introduce the subject matter originally included in the cancelled claims 21 and 27. Likewise, new claims 52 and 53 have been added which are based the cancelled original claims 28-29. In view of the amendments to claim 15, further amendments have been made throughout the claims, such as amending claim dependencies and re-introducing the original claim language into claims 38 and 39.

Referring to 35 U.S.C. 132, the Examiner has also objected to the amendments to the specification on the grounds that they introduce new matter into the disclosure. To be responsive, the Applicant hereby amends description pages 5 and 6 to delete the texts which the Examiner has deemed as introducing new matter.

In view of the foregoing amendments, the Applicant respectfully requests the Examiner to withdraw the new matter objections.

Description pages containing the Summary of Invention have also been amended to include the paraphrases of the amended independent claims.

It is respectfully submitted that the amendments made herein are to more particularly and succinctly recite the invention and to correct certain errors. All the amendments are supported by the application as originally filed, and therefore no new matter has been added.

### **Obvious Double Patenting**

The Examiner has provisionally rejected claims 1-46 on the grounds of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-39 of copending application No. 11/257,393.

To be responsive to this provisional rejection, Applicants hereby submit a terminal disclaimer with regard to the terminal part of the life time of any patent granted on this application which would extend beyond the expiration date of the full statutory term of a patent based on any patent issuing from copending application No. 11/257,393. Both the present US application Serial No. 10/811,153 and US application Serial No. 11/257,393 are commonly owned by the two applicants/inventors, namely Zheng-Hong LU and Xiaodong Feng.

The Examiner has also provisionally rejected claims 1-46 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-34 of copending application No. 11/260,469.

With respect to copending application Serial No. 11/260,469, Applicants disagree with the Examiner that the claims of '469 are not patentably distinct from the present claims for the following reasons.

As discussed in the last response, copending application Serial No. 11/260,469 is directed to a multilayer hole injection layer structure which includes a conductive layer with a hole injection layer comprised of fullerenes as recited in subparagraph b) of claim 1. Claim 1 of '469 (as amended by way of an office action response filed on July 12, 2007) further recites a second and third hole injection layer of organic molecules. Applicants respectfully submit that this is patentably distinct from the structure of present amended claim 1 which is completely silent on multiple hole injection layers and therefore one of ordinary skill in the art would view these two applications as being directed to different subject matter.

The device described on page 12, lines 2 to 3 simply states:

"a conductive anode electrode layer 30 for hole injection".

The Examiner has stated on page 9, lines 2 to 6, that there is no clear teaching away from the claimed structure by copending application Serial No. 11/260,469, as the present application does not exclude additional layers. Applicants assert that they should not have to positively exclude additional layers in the present claims in order to argue patentably distinct subject matter.

The addition of additional hole injection layers in '469 gives a different structure with advantages in terms of current flow and operation that are not obvious from the present claimed subject matter. Simply because they Applicants used the "comprising" language in the present application in no way implies that

it would be obvious to add additional hole injection layers in the way they have done in '469.

There is nothing in the present application that would lead one of ordinary skill in the art to the surprising result achieved in Serial No. 11/260,469, with the multiple hole injection layers.

Therefore applicants respectfully submit the subject matter of the claims of copending application Serial No. 11/260,469 recite subject matter patentably distinct from the present claims. Withdrawal of this nonstatutory obviousness-type double patenting is respectfully requested.

#### **Patentability of Claims over Cited References**

Claims 1-24, 26-31, 33-38 and 41-46 remain rejected under 35 U.S.C. § 103(a) as being unpatentable in view of the reference United States Patent No. 6,833,201 to Czerw et al. Claims 25 and 32 have also been rejected under 35 U.S.C. § 103(a) as being anticipated by the reference Czerw et al. in view of United States Patent No. 6,069,442 to Hung et al. Reconsideration of the grounds for this anticipation rejection is respectfully solicited for the following reasons.

In order to more clearly and distinctly distinguish the subject matter of claims 1 and 10 from Czerw, claims 1 and 10 have been amended to use the "consisting essentially of" language for the fullerene layer, thereby particularly reciting that the first layer is a pure layer of fullerenes.

In view of the above-mentioned amendments and the discussion, the Applicant respectfully submits that claims 1 and 10 as well as their dependent claims 2-9 and 11-13, are new and inventive over Czerw.

With respect to the subject matter of claim 15, it is submitted that Czerw does **not** disclose an electron transport layer of fullerenes as presently recited in claim 15. In Czerw, fullerene nanotubes are covalently bound to PPV to form a PPV-fullerene compound composite structure (referred to as PPV-AFCAR) as can be seen in Figure 2 and the disclosure at column 4, lines 22 to column 5, line 5. This PPV-fullerene compound composite structure is used in the **light**

emission layer of an EL device, not the electron transport layer, see column 6, lines 23 to 35 where the fullerene-PPV composite is used in the emission layer, and column 6, lines 63 to 65 which refers to the EL light emitting layer 10 containing the "compound as set forth above" which refers to the PPV-fullerene compound. More particularly column 6, line 36 to 48 makes very clear the composite PPV-fullerene material is used in the EL layer 10, **not** the electron transport layer 12.

Thus the whole thrust of Czerw is to provide a new electroluminescent layer made of the PPV-AFCAR composite, and only discloses PBD as the electron transport layer, see column 6, line 55 to 59 and claims 34.

Applicants submit that whether or not the structure of Czerw exhibits ohmic behavior is not relevant since the structure is not the same as in Applicants' claim 1. Therefore Applicants respectfully submit the structure of claim 15 is completely different than that disclosed in Czerw.

In view of the above discussion, the Applicant respectfully submits that claims 1, 10 and 15 as well as their dependent claims 2-9 and 11-13, 14 to 53 are new and inventive over Czerw.

In view of the foregoing amendments and discussion, Applicant submits that the claims, as amended, are new and inventive over the cited prior art.

It is respectfully submitted that the amendments made herein are to more particularly and distinctly recite the invention by incorporating the subject matter of allowable claims into their base claims. All the amendments are supported by the application as originally filed, and therefore no new matter has been added.

An earnest effort has been made to place this application in condition for allowance which action is respectfully solicited.

Should the Examiner have any questions regarding the allowability of the claims with respect to the art, it would be appreciated if the Examiner would contact the undersigned attorney-of-record at the telephone number shown below for further expediting the prosecution of the application.

Respectfully Submitted;



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